

Bachelor of Science in Data Science

The program Bachelor of Science (B.S.) in Data Science is aimed at students who wish to pursue careers in Data Science or related fields. The B.S. in Data Science degree is a multidisciplinary undergraduate program housed in the College of Liberal Arts and Sciences (CLAS) with the core consisting of courses specific to Data Science curricula, but with various concentrations in other programs to accommodate students who may wish to explore the application of Data Science to related areas. The concentrations are as follows: Social Sciences, Behavioral Sciences, Health Sciences, Natural Sciences, and Mathematics, all of which have specific applications of Data Science to solve problems.

The program objective is consistent with a Data Science degree curriculum: to prepare students for a 21st century workforce where data analysis is critical to the functioning of society, business, and education.

After completing the program, students will have enhanced technical capabilities, enhanced critical and analytical thinking skills, a well-developed skillset for coding, programming, and handling and interpreting data sets, enhanced writing and communication skills, and enhanced collaborative abilities. Due to the broad nature of the domain of Data Science, it is difficult to assess and pinpoint specific skills that a data scientist must have. However, there is a generalized set of skills that many in the field of Data Science see as essential to a well-trained data scientist (Figure 1). While a data scientist may not be an expert in each domain, they are expected to have a modicum of knowledge of each. The Data Science B.S. Program at the University of Kansas will set the bar for other programs by offering a curriculum that ensures that Data Scientists will have the requisite skillsets to be competitive in the ever-evolving field of Data Science.

Figure 1. Desired Skills and Domain Expertise for Data Scientists

Graduates of the program will be well-rounded across multiple domains, well versed in the application of Data Science to solve existential issues, able to think critically across numerous fields and synthesize information to form cogent, well-founded opinions, have excellent communication skills, and see Data Science from a multidisciplinary perspective. In addition, completing this program will enhance students' career development and employment opportunities.

Undergraduate Admission

Admission to KU

All students applying for admission must send high school and college transcripts to the Office of Admissions. Prospective first-year students should be aware that KU has qualified admission requirements that all new first-year students must meet to be admitted. Consult the Office of Admissions (<http://admissions.ku.edu/>) for application deadlines and specific admission requirements.

Visit the International Support Services (<http://www.iss.ku.edu/>) for information about international admissions.

Students considering transferring to KU may see how their college-level course work will transfer on the Office of the University Registrar (<https://registrar.ku.edu/credittransfer/>) website.

Requirements for the B.S. Degree

Code	Title	Hours
Core 34 General Education		34
The KU Core 34 is comprised of 34-35 credit hours typically completed during the first two years of study. The Core 34 consists of the following requirements: English (6), Communications (3), Math & Statistics (3), Natural & Physical Sciences with lab (4-5), Social & Behavioral Sciences (6 in two different disciplines), Arts & Humanities (6 in two different disciplines), US Culture (3), and Global Culture (3)		
MATH 101 College Algebra is the designated "math pathway" course. This course will fulfill your Core 34 Math and Statistics requirement.		
Major Requirements		
Data Science Core		
DASC 199	Data I: Dealing with Data	3
DASC 399	Data II: Foundations of Data Science	3
	or EECS 331 Introduction to Data Science	
DASC 599	Data III: Data Management	3
DASC 612	Data IV: Introduction to Machine and Statistical Learning	3
Additional Technical Skills		
EECS 138	Introduction to Computing: _____	3
MATH 125	Calculus I	4
	or MATH 145 Calculus I, Honors	
MATH 126	Calculus II	4
	or MATH 146 Calculus II, Honors	
MATH 290	Elementary Linear Algebra	2
	or MATH 291 Elementary Linear Algebra, Honors	
MATH 107	Introductory Statistics: _____	3
	or PSYC 210 Statistics in Psychological Research	
	or ECON 226 Statistics and Data Analysis for Economics	
PSYC 500	Intermediate Statistics in Psychological Research	3
	or SOC 380 Elementary Statistics and Data Analysis	
	or ECON 526 Introduction to Econometrics	
Domain of Application		
Satisfied by four courses (a minimum of 12 credit hours) numbered 300–699 selected from one of the following. All courses must be from a single domain.		12
Applied Behavioral Science (ABSC)		
Communication Studies (COMS)		
Earth and Environment (ATMO, EVRN, GEOG, GEOL)		
Economics (ECON)		
Linguistics (LING)		
Mathematics (MATH)		
Political Science (POLS)		
Psychology (PSYC)		
Sociology (SOC)		
General Electives		40
Students will need to complete additional general elective credits to reach the required 120 hours.		

Capstone		
DASC 699	Community Data Lab	3
Total Hours		120

Major Hours & Major GPA

While completing all required courses, majors must also meet each of the following hour and grade-point average minimum standards:

Major Hours in Residence

Satisfied by a minimum of 15 hours of KU resident credit in the major.

Major Junior/Senior Hours

Satisfied by a minimum of 12 hours from junior/senior courses (300+) in the major.

Major Junior/Senior Graduation GPA

Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F's and repeated courses. See the Semester/Cumulative GPA Calculator (<https://sis.ku.edu/gpa-calculator/>).

Below is a sample 4-year plan for students pursuing the BS in Data Science. To view the list of courses approved to fulfill Core 34 Goals, please visit the KU Core 34 page (<https://catalog.ku.edu/core34/>).

Freshman

Fall	Hours Spring	Hours
DASC 199 (Major Requirement)	3 DASC 399 (Major Requirement)	3
EECS 138 (Major Requirement)	3 MATH 125 (Major Requirement)	4
MATH 101 (Core 34: Math and Statistics (SGE)) ⁰³⁰	3 Core 34: Communications (SGE) ⁰²⁰	3
Core 34: Arts and Humanities (SGE) ⁰⁶⁰	3 Core 34: English (SGE) ⁰¹⁰	3
Core 34: English (SGE) ⁰¹⁰	3 Core 34: Social and Behavioral Science (SGE) ⁰⁵⁰	3
15		16

Sophomore

Fall	Hours Spring	Hours
MATH 107, PSYC 210, or ECON 226 (Major Requirement)	3 MATH 290 (Major Requirement)	2
MATH 126 (Major Requirement)	4 PSYC 500, SOC 380, or ECON 526 (Major Requirement)	3
Core 34: Natural and Physical Sciences (SGE) ⁰⁴⁰	4 Core 34: Arts and Humanities (SGE) ⁰⁶⁰	3
Core 34: Social and Behavioral Science (SGE) ⁰⁵⁰	3 Core 34: US Culture (SGE) ⁰⁷⁰	3
Core 34: Global Culture (SGE) ⁰⁷⁰	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3
17		14

Junior

Fall	Hours Spring	Hours
Domain of Application (Major Requirement)	3 DASC 612 (Major Requirement)	3
DASC 599 (Major Requirement)	3 Domain of Application (Major Requirement)	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3
15		15

Senior

Fall	Hours Spring	Hours
Domain of Application (Major Requirement)	3 DASC 699 (Major Requirement, Capstone)	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Domain of Application (Major Requirement)	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3
Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	3 Second Area of Study/ Elective/Degree/Junior-Senior Hours ¹	1
15		13

Total Hours 120

¹ Hour requirements (incl. 45 jr/sr hrs) are typically met through Core 34, degree, major, second area of study, and/or elective hours. Students completing the BGS with a major must choose a secondary area of study. Individual degree mapping is done in partnership with your advisor.

Please note:

All students in the College of Liberal Arts and Sciences are required to complete 120 total hours of which 45 hours must be at the Jr/Sr (300+) level.

Notes:

* - This course is a Required major course and is also part of Core 34: Systemwide General Education. If this course is not taken to fulfill the Core 34:SGE requirement, it must be taken in place of elective hours.

** - This course is a Recommended Core 34: Systemwide General Education course. This specific course is not required but is recommended by the program's faculty.

*** - This course is a Required Core 34: Systemwide General Education course. This program is approved by the Kansas Board of Regents to

require this specific Core 34: Systemwide General Education course. If a student did not take this course it must be taken in addition to other degree requirements.

After completing the program, students will have:

- Developed proficiency in solving analytical problems using mathematics and statistics.
- Developed, deployed, and used computational programs for data science applications.
- Acquired skills in data processing, management, documentation, and replicability.
- Effectively communicated data-driven insights in visual, written, and oral form.
- Demonstrated an understanding of ethical principles of data management and analysis, as well as act responsibly in professional data application activities.

Students may inquire about departmental honors as soon as they are admitted to the undergraduate major. This program is distinct from College Honors (<https://honors.ku.edu/>). A student may earn College Honors, Psychology Honors, neither, or both. The Psychology Honors program requires students to have a faculty research mentor, take *two* semesters of PSYC 460: Honors Thesis (formerly called Honors in Psychology), complete a research project, and present their findings in a public forum (including in the PSYC 460 course). Per the college rules, students must complete the course with a grade of B or higher. Per the college rules, the completion of these requirements must be certified to the departmental honors director by at least three members of the college faculty who have read the report of the independent research. Please reference the department website (<https://psychology.ku.edu/honors/>) for specific details.